COMMONWEALTH OF VIRGINIA
STATE AIR POLLUTION CONTROL BOARD
REGULATIONS FOR THE CONTROL AND ABATEMENT OF AIR POLLUTION

9 VAC 5 CHAPTER 50.
NEW AND MODIFIED STATIONARY SOURCES.

PART II.
Emission Standards.

ARTICLE 6.
Standards Of Performance For Regulated
Medical Waste Incinerators (Rule 5-6).

9 VAC 5-50-430. Applicability and designation of affected facility.

A. Except as provided in subsections C and D of this section, the affected facility to which the provisions of this article apply is each regulated medical waste incinerator.

B. The provisions of this article apply throughout the Commonwealth of Virginia.

C. The provisions of this article do not apply to incinerators the construction or modification of which as defined in 9 VAC 5 Chapter 80 (9 VAC 5-80-10 et seq.) commenced prior to September 1, 1993.

D. The provisions of this article do not apply to combustion units or incinerators burning materials that do not include regulated medical waste.

9 VAC 5-50-440. Definitions.

A. For the purpose of these regulations and subsequent amendments or any orders issued by the board, the words or terms shall have the meaning given them in subsection C of this section.

B. As used in this article, all terms not defined here shall have the meaning given them in 9 VAC 5 Chapter 10 (9 VAC 5-10-10 et seq.), unless otherwise required by context.

C. Terms defined.

"Commercial regulated medical waste incinerator" means any regulated medical waste incinerator that burns regulated medical waste if more than 25% of such waste is generated off-site.

"Continuous emission monitoring system" means a monitoring system for continuously measuring the emissions of a pollutant from an affected facility.

"Dioxins" and "furans" means tetra- through octachlorinated dibenzo-p-dioxins and dibenzofurans.

"Four-hour block average" means the average of all hourly emission rates or temperatures when the affected facility is operating and combusting regulated medical waste measured over four-hour periods of time from midnight to 4 a.m., 4 a.m. to 8 a.m., 8 a.m. to noon, noon to 4 p.m., 4 p.m. to 8 p.m., 8 p.m. to midnight.

"Incinerator" means any furnace or device used in the process of burning any type of waste for the primary purpose of destroying matter or reducing the volume of the waste by removing combustible matter or both.

"On-site" means (i) the same or geographically contiguous property which may be divided by a public or private right-of-way, provided the entrance and exit between the properties are at a crossroads intersection and access is by crossing, as opposed to going along, the right-of-way or (ii) noncontiguous properties owned by the same person but connected by a right-of-way controlled by the same person and to which the public does not have an access.

"Off-site" means any site that does not meet the definition of on-site.

"Pathological waste" means a solid waste that is human tissues, organs, body parts, fetuses, placentas, effluences or similar material, and animal tissue, organs, body parts, fetuses, placentas, effluence or similar material from animals exposed to

human pathogens for purposes of testing or experimentation.

"Potential hydrogen chloride emission rate" means the hydrogen chloride emission rate that would occur from the combustion of regulated medical waste in the absence of any hydrogen chloride emissions control.

"Rated capacity" means the waste charging rate expressed as the maximum capacity guaranteed by the equipment manufacturer or the maximum normally achieved during use, whichever is greater.

"Regulated medical waste" means any solid waste identified or suspected by the health care profession as being capable of producing an infectious disease in humans. A waste shall be considered to be capable of producing an infectious disease if it has been or is likely to have been contaminated by an organism likely to be pathogenic to humans, such organism is not routinely and freely available in the community, and such organism has a significant probability of being present in significant quantities and with sufficient virulence to transmit disease. In addition, regulated medical waste shall include the following:

a. Discarded cultures, stocks, specimens, vaccines, and associated items likely to have been contaminated with organisms likely to be pathogenic to humans, discarded etiologic agents, and wastes from production of biologicals and antibiotics likely to have been contaminated by organisms likely to be pathogenic to humans;

b. Wastes consisting of human blood, human blood products, and items contaminated by free-flowing human blood;

c. Pathological wastes;

d. Used sharps likely to be contaminated with organisms that are pathogenic to humans, and all sharps used in patient care;

e. The carcasses, body parts, bedding material, and all other wastes of animals intentionally infected with organisms likely to be pathogenic to humans for purposes of research, in vivo testing, production of biological materials or any other reason, when discarded, disposed of, or placed in accumulated storage;

f. Any residue or contaminated soil, water, or debris resulting from cleanup of a spill of any regulated medical waste; and

g. Any waste contaminated by or mixed with regulated medical waste.

Regulated medical waste shall not include:

a. Wastes contaminated only with organisms which are not generally recognized as pathogenic to humans, even if those organisms cause disease in other

plants or animals, and which are managed in complete accord with all regulations of the U.S. Department of Agriculture and the Virginia Department of Agriculture and Consumer Services;

b. Meat or other food items being discarded because of spoilage or contamination, unless included in subdivisions 1 through 7 above;

c. Garbage, trash, and sanitary waste from septic tanks, single or multiple residences, hotels, motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas, except for waste generated by provision of professional health care services on the premises, provided that all medical sharps shall be placed in a container with a high degree of puncture resistance before being mixed with other wastes or discarded;

d. Used products for personal hygiene, such as diapers, facial tissues, and sanitary napkins; and

e. Material, not including sharps, containing small amounts of blood or body fluids, and no free-flowing or unabsorbed liquid.

"Regulated medical waste incinerator" means any incinerator used in the process of burning regulated medical waste.

"Sharps" means needles, scalpels, knives, broken glass, syringes, pasteur pipettes and similar items having a point or sharp edge.

"Solid waste" shall have the meaning ascribed to it in § 10.1-1400 of the Code of Virginia. However, for purposes of this article, the following materials are not solid wastes:

a. Domestic sewage, including wastes that are not stored and are disposed of in a sanitary sewer system (with or without grinding);

b. Any mixture of domestic sewage and other wastes that pass through a sewer system to a wastewater treatment works permitted by the State Water Control Board or the Department of Health;

c. Human remains under the control of a licensed physician or dentist, when the remains are being used or examined for medical purposes and are not abandoned materials; and

d. Human remains properly interred in a cemetery or in preparation by a licensed mortician for such interment or cremation.

9 VAC 5-50-450. Standard for particulate matter.

No owner or other person shall cause or permit to be discharged into the atmosphere from any regulated medical waste incinerator any particulate emissions in excess of the following limits:

1. For incinerators with a rated capacity equal to or greater than 1000 pounds per hour: 0.015 grains per dry standard cubic foot of exhaust gas corrected to 7.0% oxygen (dry basis).

2. For incinerators with a rated capacity equal to or greater than 500 pounds per hour and less than 1000 pounds per hour: 0.03 grains per dry standard cubic foot of exhaust gas corrected to 7.0% oxygen (dry basis).

3. For incinerators with a rated capacity less than 500 pounds per hour: 0.10 grains per dry standard cubic foot of exhaust gas corrected to 7.0% oxygen (dry basis).

9 VAC 5-50-460. Standard for carbon monoxide.

No owner or other person shall cause or permit to be discharged into the atmosphere from any regulated medical waste incinerator any carbon monoxide emissions in excess of 50 parts per million by volume dry average per operating cycle or per day, whichever is less in duration, corrected to 7.0% oxygen (dry basis). An operating cycle shall be the period of time from the initial loading of waste into the incinerator through the burn-down cycle.

9 VAC 5-50-470. Standard for hydrogen chloride.

No owner or other person shall cause or permit to be discharged into the atmosphere from any regulated medical waste incinerator any hydrogen chloride emissions in excess of the following limits:

1. For incinerators with a rated capacity equal to or greater than 500 pounds per hour and less than 1000 pounds per hour: 10% of the potential hydrogen chloride emission rate (90% reduction by weight or volume).

2. For incinerators with a rated capacity equal to or greater than 1000 pounds per hour: 5.0% of the potential hydrogen chloride emission rate (95% reduction by weight or volume).

9 VAC 5-50-480. Standard for dioxins and furans.

A. No owner or other person shall cause or permit to be discharged into the atmosphere from any regulated medical waste incinerator with a rated capacity equal to or greater than 500 pounds per hour any total dioxin or furan emissions in excess of 8 grains per billion dry standard cubic feet corrected to 7.0% oxygen (dry basis).

B. A waiver from the provisions of subsection A of this section may be obtained from the board upon a demonstration to the board's satisfaction that the maximum annual risk does not exceed 1 in 100,000. Ambient air concentrations and risk assessments shall be determined using air quality analysis techniques and methods acceptable to the board.

9 VAC 5-50-490. Standard for visible emissions.

A. The provisions of Article 1 (9 VAC 5-50-60 et seq.) of this chapter (Standards of Performance for Visible Emissions and Fugitive Dust/Emissions, Rule 5-1) apply except that the provisions in subsection B of this section apply instead of 9 VAC 5-50-80.

B. No owner or other person shall cause or permit to be discharged into the atmosphere from any regulated medical waste incinerator any visible emissions which exhibit greater than 10% opacity. Failure to meet the requirements of this section because of the presence of water vapor shall not be a violation of this section.

9 VAC 5-50-500. Standard for fugitive dust/emissions.

The provisions of Article 1 (9 VAC 5-50-60 et seq.) of this chapter (Standards of Performance for Visible Emissions and Fugitive Dust/Emissions, Rule 5-1) apply.

9 VAC 5-50-510. Standard for odor.

The provisions of Article 2 (9 VAC 5-50-130 et seq.) of this chapter (Standards of Performance for Odorous Emissions, Rule 5-2) apply.

9 VAC 5-50-520. Standard for toxic pollutants.

The provisions of Article 3 (9 VAC 5-50-160 et seq.) of this chapter (Standards of Performance for Toxic Pollutants, Rule 5-3) apply, including those provisions that apply to emissions of hydrogen chloride, except that the provisions of 9 VAC 5-50-480 apply to emissions of dioxins and furans.

9 VAC 5-50-530. Standard for radioactive materials.

Radioactive materials shall be handled in accordance with the regulations of the U.S. Environmental Protection Agency, the U.S. Nuclear Regulatory Commission, and the Virginia Department of Health.

9 VAC 5-50-540. Compliance.

A. In addition to the provisions of 9 VAC 5-50-20 (Compliance), the provisions of subsections B through D of this section apply.

B. The owner of an affected facility shall operate the facility within parameters as specified below in accordance with methods and procedures acceptable to the board.

1. The minimum primary chamber temperature shall be 1400°F or the manufacturer's recommended operating temperature, whichever is higher, for a period of time needed to achieve complete pyrolysis.

2. A secondary combustion chamber with afterburner is required. The minimum secondary chamber temperature shall be 1800°F or the manufacturer's recommended operating temperature, whichever is higher, for a period of no less than two seconds.

3. Combustion control systems shall include chamber thermostats to ensure that the auxiliary burners automatically ignite and fire in order to maintain the primary and secondary chamber temperatures.

4. An interlock system to prevent incinerator feeding prior to attaining the minimum secondary chamber temperature is required.

5. The minimum sorbent injection rate, expressed in pounds per hour of active neutralizing agent, shall be calculated as follows:

$$SI_{min} = 1.2\ (SI_{test})(\%\ ANA)$$

where:

SI_{min} = minimum sorbent injection rate (pounds per hour).
SI_{test} = pounds per hour of sorbent injected during the performance test, while the hydrogen chloride inlet concentration was highest.
% ANA = percent by weight of active neutralizing agent in the sorbent.

C. An owner may request that compliance with the applicable emission limit be determined using carbon dioxide measurements corrected to an equivalent of 7.0% oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established during the initial performance tests. In such cases, the applicable emission limit shall be corrected to the established percentage of carbon dioxide without the contribution of auxiliary fuel carbon dioxide when using a fuel other than natural gas or liquified petroleum gas.

D. All facilities are required to meet the compliance requirements of Part VII (9 VAC 20-120-520 et seq.) of 9 VAC 20 Chapter 120 (Regulated Medical Waste Management Regulations).

9 VAC 5-50-550. Test methods and procedures.

A. In addition to the provisions of 9 VAC 5-50-30 (Performance testing), the

provisions of subsections B through E of this section apply.

B. The owner of an affected facility shall conduct performance tests and reduce associated data as specified below in accordance with methods and procedures acceptable to the board.

1. For all incinerators: particulate matter, carbon monoxide and visible emissions.

2. For all incinerators with a rated capacity equal to or greater than 500 pounds per hour: hydrogen chloride emissions and control efficiency of any scrubber system used to control hydrogen chloride emissions. Hydrogen chloride performance tests shall begin no earlier than one hour after the initial loading of waste into the incinerator. Hourly feed rate during hydrogen chloride performance tests shall be determined as the total amount of waste loaded into the incinerator between the beginning of the first sampling run of the day and the end of the last sampling run of the day, divided by the total number of hours elapsed.

3. For all incinerators with a rated capacity equal to or greater than 500 pounds per hour: dioxin and furan emissions.

C. Frequency of testing as required in subsection B of this section shall be required as follows.

1. For all incinerators: on-site initial performance tests.

2. For incinerators with a rated capacity equal to or greater than 1000 pounds per hour: on-site annual performance tests for dioxins and furans.

D. Regulated medical waste incinerators which are of standardized manufacture and are shipped as assembled incinerators from the factory of manufacture may be exempt from on-site initial particulate matter and carbon monoxide performance testing, provided that:

1. The incinerator has a rated capacity of less than 100 pounds per hour;

2. The manufacturer has obtained a satisfactory test on an identical incinerator of similar size and design certified by a registered engineer;

3. The test has been certified for the same type of waste as designated for the incinerator subject to the permit; and

4. The test results are submitted to the board and found acceptable (waste type, incinerator design, acceptable feed range, equivalent operating parameters, equivalent auxiliary fuel, acceptable methodology).

E. Required on-site testing shall be done while the incinerator is operated at 90% or greater of the rated capacity and operated by trained plant personnel only.

9 VAC 5-50-560. Monitoring.

A. In addition to the provisions of 9 VAC 5-50-40 (Monitoring), the provisions of subsection B of this section apply.

B. The owner of an affected facility shall install, calibrate, maintain and operate equipment for continuously monitoring and recording emissions or process parameters or both as specified below in accordance with methods and procedures acceptable to the board.

1. For all incinerators with a rated capacity equal to or greater than 500 pounds per hour, continuous measurement and display is required for primary and secondary chamber temperatures. Thermocouples shall be located at or near the primary and secondary chamber exits.

2. For all incinerators with a rated capacity equal to or greater than 1000 pounds per hour, continuous recording is required for the secondary chamber temperature.

3. For all incinerators with a rated capacity equal to or greater than 1000 pounds per hour, continuous measurement, display and recording is required for opacity, with the output of the system recording on a six-minute average basis.

4. For all incinerators with a rated capacity equal to or greater than 1000 pounds per hour, continuous measurement, display and recording is required for carbon monoxide emissions, with carbon dioxide or oxygen diluent monitor.

5. A pH meter is required for each wet scrubber system.

6. A flow meter to measure the sorbent injection rate is required for each wet scrubber system.

9 VAC 5-50-570. Notification, records and reporting.

A. In addition to the provisions of 9 VAC 5-50-50 (Notification, records and reporting), the provisions of subsections B through F of this section apply.

B. Following initial notification as required under 9 VAC 5-50-50 A 3, the owner of an affected facility shall submit the initial performance test data and the performance evaluation of the continuous emission monitoring systems using the applicable performance specifications in 40 CFR 60 Appendix B.

C. Following initial notification as required under 9 VAC 5-50-50 A 3, the owner of an affected facility shall submit quarterly compliance reports for hydrogen chloride, carbon monoxide, and secondary combustion chamber temperature to the board containing the information for each applicable pollutant or parameter. The hourly average values recorded under subdivision F 2 of this section are not required to be included in the quarterly reports. Such reports shall be postmarked no later than the 30th day following the end of each calendar quarter.

D. The owner of an affected facility shall submit quarterly excess emission reports, as applicable, for opacity. The quarterly excess emission reports shall include all information recorded under this subsection which pertains to opacity, and a listing of the six-minute average opacity levels recorded under this subsection for all periods when such six-minute average levels exceeded the opacity limit under 9 VAC 5-50-490. The quarterly report shall also list the percentage of the affected facility operating time for the calendar quarter during which the opacity continuous emission monitoring system was operating and collecting valid data. Such excess emission reports shall be postmarked no later than the 30th day following the end of each calendar quarter.

E. The owner of an affected facility shall submit reports to the board of all annual performance tests for dioxins and furans from the affected facility. Such reports shall be submitted when available but in no case later than the date of the required submittal of the quarterly report specified under subsection C of this section covering the calendar quarter following the quarter during which the test was conducted.

F. The owner of an affected facility shall maintain and make available to the board upon request records of the following information for a period of at least five years:

1. Dates of emission tests and continuous monitoring measurements.

2. The emission rates and parameters measured using performance tests or continuous emission or parameter monitoring, as applicable, as follows:

a. The following measurements shall be recorded in computer-readable format and on paper:

(1) The six-minute average opacity levels;

(2) All one-hour average hydrogen chloride emission rates at the inlet and outlet of the acid gas control device; and

(3) All one-hour average carbon monoxide emission rates and secondary combustion chamber temperatures.

b. The following average rates shall be computed and recorded:

(1) All 24-hour daily arithmetic average percentage

reductions in hydrogen chloride emissions and all 24-hour daily arithmetic average hydrogen chloride emission rates;

(2) All operating cycle or 24-hour daily arithmetic average carbon monoxide emission rates, as applicable; and

(3) All four-hour block arithmetic average secondary combustion chamber temperatures.

3. Identification of the operating days when any of the average emission rates, percentage reductions, or operating parameters specified under this subsection or the opacity level have exceeded the applicable limit, with reasons for such exceedances as well as a description of corrective actions taken.

4. Identification of operating days for which the minimum number of hours of emissions rate or operational data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken.

5. Identification of the times when emissions rate data have been excluded from the calculation of average emission rates or parameters and the reasons for excluding data.

6. The results of daily carbon monoxide continuous emission monitor system drift tests and accuracy assessments as required under 40 CFR 60, Appendix F, Procedure 1.

7. The results of all applicable performance tests conducted to determine compliance with the particulate matter, carbon monoxide, dioxins and furans, and hydrogen chloride limits.

8. Records of continuous emission or parameter monitoring system data for opacity, carbon monoxide, and secondary combustion chamber temperature.

9. For commercial regulated medical waste incinerators, records of the amount and types of waste brought in from off-site.

9 VAC 5-50-580. Registration.

The provisions of 9 VAC 5-20-160 (Registration) apply.

9 VAC 5-50-590. Facility and control equipment maintenance or malfunction.

The provisions of 9 VAC 5-20-180 (Facility and control equipment maintenance or malfunction) apply.

9 VAC 5-50-600. Permits.

A permit may be required prior to beginning any of the activities specified below if the provisions of this chapter and 9 VAC 5 Chapter 80 (9 VAC 5-80-10 et seq.) apply. Owners contemplating such action should review those provisions and contact the appropriate regional office for guidance on whether those provisions apply.

1. Construction of a facility.

2. Reconstruction (replacement of more than half) of a facility.

3. Modification (any physical change to equipment) of a facility.

4. Relocation of a facility.

5. Reactivation (re-startup) of a facility.

HISTORICAL NOTES:

Derived from: Rule 5-6 of Part V or VR 120-01 (§ 120-05-0601 through § 120-05-0618)

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